

Bellwork: 3/19/13

Perform the indicated operation: (no calculator)

1) $\frac{3}{4} + \frac{7}{9}$

$\frac{27}{36} + \frac{28}{36} = \frac{55}{36}$

2) $\frac{-2}{5} - \frac{5}{2}$

$-\frac{4}{10} - \frac{25}{10} = \frac{-29}{10}$

3) $\frac{-4}{7} \cdot \frac{8}{3} = \frac{-32}{21}$

4) $\frac{9}{8} \div \frac{6}{11}$

$\frac{9}{8} \cdot \frac{11}{6} = \frac{33}{16}$ $\frac{99}{48}$

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RATIONAL EXPRESSIONS

Rational Expression: a fraction that has variables in the denominator.

Simplifying Rational Expressions:

Recall: A fraction is in reduced form if the numerator and denominator have no common factors. The key to simplifying rational expressions is your ability to factor polynomials.

Reduce the following expressions:

Example 1: $\frac{x^2 + 4x - 12}{3x - 6} = \frac{(x+6)(x-2)}{3(x-2)} = \frac{x+6}{3}$

Example 2: $\frac{16 - x^2}{2x^2 - 9x + 4} = \frac{-x^2 + 16}{2x^2 - 9x + 4} = \frac{-1(x^2 - 16)}{(2x-1)(x-4)} = \frac{-1(x+4)(x-4)}{(2x-1)(x-4)} = \frac{-1(x+4)}{2x-1}$

Remember to avoid this common error:

$$\frac{x+3}{3} \neq \frac{x+3}{3} = x$$

You can only divide common factors, not terms.

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$$\frac{x^2 + 6x + 9}{9x + 27} = \frac{(x+3)^2}{9(x+3)} = \boxed{\frac{(x+3)}{9}}$$

$$\frac{25 - x^2}{2x^2 + 11x + 5} = \frac{-x^2 + 25}{(2x+1)(x+5)} = \frac{-1(x^2 - 25)}{(2x+1)(x+5)} = \frac{-1(x-5)(x+5)}{(2x+1)(x+5)} = \boxed{\frac{-1(x-5)}{(2x+1)}}$$

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Homework: Worksheet 8.4 #1 (page 2 of packet)

$$\textcircled{3} \frac{5m}{15m^2 - 5m} = \frac{\cancel{5m}^1}{\cancel{5m}(3m-1)} = \boxed{\frac{1}{3m-1}}$$

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